Exhibit 3

#4/A pg 5/29/02

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:	Lo et al.
Application No.:	09/872,063
Confirmation No.:	3772
Filed:	June 1, 2001
For:	NON-INVASIVE PRENATAL DIAGNOSIS
Group:	1655
Examiner:	Goldberg, Jeanine Anne

Our File: JAK-PT001.1

Date: May 9, 2002

REPLY PURSUANT TO 37 C.F.R. § 1.111

Commissioner for Patents
Washington, D.C. 20231

Sir:

This Reply is responsive to the Official Action dated November 16, 2001 and is submitted in conjunction with an appropriate petition for extension of time, a Supplemental Information Disclosure Statement and a Section 132 Declaration. Please amend the following application as follows:

IN THE CLAIMS

Please amend claims 1, 6, 14, 16, 18, 19 and 31 to read as follows:

A1

1. (Amended) A detection method performed on a maternal serum or plasma sample from a pregnant female, which method comprises detecting the presence of a fetal

nucleic acid in the sample by detecting nucleic acid which differs qualitatively or quantitatively from that of the maternal genome.

A1 concld

A2

6. (Amended) The method according to claim 1, wherein the presence of a fetal nucleic acid sequence from the Y chromosome is detected.

A3

14. (Amended) The method according to claim 13, for Rhesus D genotyping a fetus in a Rhesus D negative mother.

A4

16. (Amended) The method according to claim 1, which comprises determining the concentration of a fetal nucleic acid sequence in the maternal serum or plasma.

A5

18. (Amended) The method according to claim 1, for the detection of a maternal or fetal disease condition in which the concentration of fetal DNA in the maternal serum or plasma is higher or lower than the concentration present in normal pregnancy.

19. (Amended) The method according to claim 1 for the detection of a fetal disease condition wherein the pattern of variation of fetal DNA concentration in the maternal serum or plasma at particular stages of gestation is different from that of normal pregnancy.

AM2 31. (Amended) A method of non-invasive prenatal diagnosis for determining a fetal genetic condition comprising:

obtaining plasma or serum from a sample of a pregnant female's blood, detecting fetal nucleic acid within the serum or plasma and determining the presence or absence of one or more selected nucleic acid sequences in the detected fetal nucleic acid.

Please cancel claims 24-30, without prejudice.

Please add the following new claims 33-36 as follows:

AJ --33. A detection method performed on a maternal serum or plasma sample from a pregnant female, which method comprises detecting the presence of a fetal nucleic acid in the sample by detecting nucleic acid which differs in sequence or amount from that of the maternal genome.

34. The method according to claim 16, wherein the fetal nucleic acid sequence is a chromosome 21 sequence.

35. The method according to claim 16, wherein an increase in the quantity of fetal DNA above a population mean indicates an increased risk of fetal aneuploidy.

A2 cont'd

36. A detection method performed on a maternal serum or plasma sample from a pregnant female, which method comprises (a) amplifying a fetal nucleic acid sequence or isolating fetal cells, from maternal plasma or serum and (b) detecting the presence of a nucleic acid of fetal origin in the amplified sequence or isolated cells. --

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REMARKS

All references in this response to paragraphs are to the paragraphs of the Publication of this application under Publication No. 2001/0051341 A1, which differ from those of the original typescript.

Priority

The acknowledgment of U.S. priority, 35 U.S.C. §371 and foreign priority status under the international convention has been noted with thanks. It is further noted that the parent patent application No. 09/380,696, filed on November 29, 1999, has issued to U.S. Patent No. 6,258,540.

Claim Amendments

Claim 1 has been amended and now specifies that the method proceeds "by detecting nucleic acid which differs qualitatively or quantitatively from that of the maternal genome". The amendment is for clarification purposes only and is in no way connected with prior art.

Claim 14 has been amended, as suggested by the Examiner, and is now dependent upon Claim 13.

Claim 16 has been amended, as suggested by the Examiner, and is now dependent upon Claim 1.

Claims 18 and 19 have been amended to introduce mention of a disease condition and thus enable the term "normal" to be clarified as relating to the undiseased state. The amendment is no way connected with prior art.

Claims 24-30 have been deleted for reasons purely of expediency, as the subject matter is adequately covered by earlier claims. The deletion is in no way connected with prior art.

Claim 31 has been amended for clarification purposes only and now specifies a "genetic condition of the fetus".

New claims 33-36 are presented; no new matter has been added.

Basis for claim 34 can be found at paragraph [0020] of the application.

Basis for claim 35 can be found at Figure 1 and the accompanying text at paragraphs [0024] and [0073].

Basis for claim 36 can be found at paragraphs [0012] and [0161].

A marked-up copy of the claim amendments is attached.

Traversal Of Rejections

Claims 1-32 have been rejected under 35 U.S.C. §112, first paragraph. The claims have been amended, but if and insofar as the examiner might deem the rejections of continuing applicability, applicants respectfully contest them for the following reasons.

The use of fetal nucleic acid analysis for a wide variety of diagnostic and other purposes is well known in the art. Conventional methods for obtaining fetal nucleic acid include invasive techniques which have the potential for harming the fetus itself. Applicants' discovery that fetal nucleic acid can be detected in maternal serum or plasma and disclosure of methods for detecting fetal nucleic acid in maternal serum or plasma as defined by independent claims 1 and 33 is a significant advance in the art. Using Applicants' teachings to detect fetal nucleic acid, much useful information is gained even at the earliest stages of pregnancy without any disturbance of the fetus whatsoever. While continued advances may improve detection, this does not detract from the fact that fetal nucleic acid can be detected using Applicants' claimed methods.

The instant application clearly teaches that large amounts of fetal nucleic acid are present in maternal serum or plasma from the first trimester and can be detected. The identification of such large amounts of fetal nucleic acid is, in itself, the solution to a significant technical problem, namely, how to obtain, non-invasively, analytically useful amounts of fetal nucleic acid for genetic analysis. The application, in addition to providing

specific examples, also teaches the broad applicability of the invention to non-invasive prenatal genetic analysis see paragraphs [0160 and 0161].

The parent patent 6,258,540 claims in claim 1:

"A method for detecting a paternally inherited nucleic acid of fetal origin performed on a maternal serum or plasma sample from a pregnant female, which method comprises amplifying a paternally inherited nucleic acid from the serum or plasma sample and detecting the presence of a paternally inherited nucleic acid of fetal origin in the sample."

This is just one specific example which illustrates the utility of Applicants' claimed invention. Applicants seek in this continuing application to obtain claims that more fully reflect the generality of the invention. This is because the term "paternally inherited" does not cover the cases: (a) in which a gene is maternally inherited, yet the nucleic acid is not (in total) the same in the fetus as in the mother, and (b) in which the gene is altered spontaneously, for example, in the egg or sperm, i.e. by what appears to be chance or sporadic mutation. Also, it is not always necessary to amplify the nucleic acid in the sample in order to detect the fetal DNA.

Turning now to the specifics of the enablement rejections raised by the examiner under 35 U.S.C. §112, first paragraph, it is believed that many will be resolved by study of the enclosed Declaration of Professor Yuk-Min Dennis Lo, one of the inventors.

At page 3, line 12 to page 4, line 5, the Examiner refers to certain papers of inventor Lo et al. which are not prior art, but which allegedly imply that the inventors had not conceived their invention as applicable to the first trimester of pregnancy, i.e. before the 15th week of gestation. Professor Lo deals with this point in section 4 of his Declaration, where he says:

> "I now believe that these statements, made in refereed journals are over-cautious and that it was fully justified to take a wider view of the applicability of my work when the patent application was first prepared. Thus, I believe that those familiar with DNA amplification techniques would be able to achieve useful results from samples taken during the first trimester of pregnancy."

Professor Lo lists and explains the underlying evidence for this statement, by referring to no less than five different sources:

(a) the patent application itself, Figures 4A to 4L and the associated description at printed paragraph [0152] where the SRY gene was consistently detected at between 7 and 14 weeks in 12 experiments;

(b) a statement by another research group, Faas et al., in a 1998 paper, in which these authors refer to the very same data mentioned above as present in the patent application

and acknowledge that these data showed detection of fetal DNA in maternal plasma in the first trimester of pregnancy;

(c) a large scale experiment by another research group, Sekizawa et al., on 275 women in the first trimester of pregnancy, in which sex determination was carried out successfully;

(d) another large scale experiment by another research group, Honda et al., on 75 women in the first trimester of pregnancy, in which sex determination was carried out successfully;

(e) the detection by Amicucci et al. of a specific genetic mutation, involving a CTG repeat sequence, during the first trimester.

As Professor Lo states in relation to (d), "these detectable quantities of DNA could be utilized by those skilled in the art to detect any target sequence within the [fetal] DNA, just by the use of the appropriate primer sequence in relation to that target". It is immaterial whether the DNA detected is paternally inherited or not. See also, Lo's concluding statement in section 7 of his Declaration:

> "I believe that the above examples show that when the competent person in the field has been taught, by the present invention, that the maternal plasma or serum contains sufficient fetal DNA in the high concentrations found, he would have no difficulty in carrying out fetal diagnosis to detect even small

genetic defects, in any chromosomal locus, and even in the first trimester of pregnancy."

On page 5 of the Action, the claims are rejected on the ground that detecting non-paternally inherited fetal DNA in maternal plasma samples is unpredictable and requires amplification of the DNA. Applicants respectfully contest this rejection. The examples referred to above, in the Lo Declaration, of the practice of the present invention should be viewed as convincing and relevant to non-paternally inherited as well as paternally inherited DNA. The inherited source of the DNA cannot make any difference to the chromosomal concentration. It is irrelevant that the DNA is paternally inherited in the examples quoted above, since the critical teaching of the present invention is that ALL fetal DNA is greatly increased in concentration in the maternal plasma or serum as compared with maternal whole blood.

The rejection relating to amplification is also raised at page 6, lines 4-5, and 18 of the Action. At lines 4-5, the Examiner states "it is unpredictable that the fetal nucleic acids could be detected without first amplifying the fetal nucleic acids". We respectfully disagree with this statement. Whilst it may be preferable to use an amplification technique, this is not a limitation of the method of the invention. It is simply a matter of using a diagnostic method that gives a signal that is powerful enough to be detectable. The application clearly indicates that an enrichment or amplification step of some sort is preferable and usual, but it does not

state that this is an essential part of the invention. Indeed the invention has been practiced without any amplification step, as shown by Poon et al., The Lancet 356, 1819-1820 (November 25, 2000) in which detection of fetal DNA was carried out on maternal plasma obtained at 12 & 15 (combined), 15 and 21 weeks using a probe specific for chromosome 21 to detect a chromosomal aneuploidy (Down's syndrome). This was achieved with a DNA probe attached to a fluorescent marker.

The Examiner links these rejections with an assertion that the specification does not provide any information as to the quantity of fetal nucleic acids present during the first trimester of pregnancy. It is true that there is no information in the specification about quantity, specifically related to weeks 7 to 14, but the specification does give information about the quantity in weeks 11 to 17 (and termination of the pregnancy at week 17 is still a possibility): see paragraph [0150] of the patent application, disclosing a mean fractional concentration of 3.4% in plasma and 0.13% in serum. Regardless of the exact numerical concentration, there is ample evidence that the invention works, as shown above and in the specification. Thus, Applicants respectfully contest the notion that there is a lack of information in the specification or that if there were any such lack relating to numerical concentrations, it would be in any way non-enabling for the carrying out of the method

The Examiner, referring to a publication by the inventor, asserts on page 4, line 16 of the Action, that "Lo has not taught single gene disorders other than RhD..."

In addition to providing the RhD example and discussing the general applicability of the invention to "fetal-derived paternally inherited polymorphisms/mutations or genes" paragraph [0160] of the patent application refers to a number of other conditions to which the invention may be applied, including sex-linked disorders, cystic fibrosis and hemoglobinopathies. This paragraph also refers to a 1994 paper by Lo that describes specific methods for the detection of cystic fibrosis. The term "single gene disorder" is a well recognized term of art and the mutations involved in known single gene disorders are usually well characterized. Given the information provided in the patent application and general knowledge of the skilled reader, the invention could be applied broadly to the detection of other single gene disorders. Indeed a number of workers have used the method of the invention to detect single gene disorders, including:

(a) Saito et al., The Lancet 356, 1170 (2000) describe the diagnosis of fetal achondroplasia, a genetic defect which gives rise to short limbs. In nearly all cases, genetic defect is a single nucleotide change in the gene encoding human fibroblast growth factor receptor 3.

(b) Amicucci et al. who detected a specific genetic mutation, involving a CTG repeat sequence, during the first trimester.

The Examiner noted that Amicucci et al. conceived that their results were appropriate only for paternally inherited mutations. This is the knowledge of cautious scientists

operating under the conditions of peer reviewed literature. In fact there is no known reason why in principle a genetic mutation should not be detected equally easily in a maternally inherited gene; of course, such mutations, being essentially sporadic, are uncommon.

The Action contains a similar objection at page 7, lines 4 and 5 regarding simple point mutations, stating "it is unpredictable that a disease phenotype which occurs due to a single point mutation would be detectable". Single point mutations are examples of aberrations in the DNA sequence that may cause single gene disorders. The above mentioned paper by Saito et al. is an example of the use of the present invention to detect such a mutation.

Next, the official Action refers to Pertl et al. who conceived that the method of the invention is applicable to aneuplodies only if they are paternally inherited. In fact, the inventor Lo has demonstrated the applicability of the method to Down's syndrome which is not usually paternally inherited. This point is dealt with below.

As part of the enablement objection the Examiner states at page 6, lines 5 onwards of the Action, "The detection of a maternally inherited nucleic acid is unpredictable". Applicants respectfully traverse this objection. It would be obvious, given the abundance of fetal nucleic acid in maternal plasma or serum, that even a simple single nucleotide change would be detectable. It is immaterial how such a fetal sequence arises; it may be a paternally inherited sequence or it may arise as a result of a spontaneous mutation in either the egg or sperm. Thus the invention is not limited to the detection of paternally inherited fetal DNA.

Whilst the application does not provide a specific example of the detection of a specific maternally inherited fetal nucleic acid sequence, it does provide examples of how the invention may be used to screen for a disease that is maternal in origin based on a quantitative assay. The additional chromosome 21 present in a Down's affected fetus, whilst not present in the genome of the mother, is usually derived from the egg and is thus maternally inherited. The application provides examples of screening for Down's syndrome, see Example 2, paragraph [0045], by measuring fetal DNA concentration using a paternally inherited marker; an elevated level being indicative of a Down's-affected fetus. An alternative strategy for the detection of Down's is presented in paragraph [0020]; this utilizes markers for chromosome 21 and another chromosome. These markers are not necessarily specific to a particular fetal specific DNA sequence; the intention is to amplify both maternal and fetal DNA and measure a difference in the concentration of the different chromosome markers. Obtaining diagnostically useful information regarding fetal aneuploidy is an important aspect of the invention.

Furthermore, the literature shows that at least two research groups have used the teaching of the patent application to detect a fetal aneuploidy using maternal serum or plasma, including:

(a) Zhong et al., Prenatal Diagnosis 20, 795-798 (2000), who analyzed maternal plasma and observed "an almost two-fold elevation in the amount of fetal circulatory DNA

in pregnancies with 47XY +21 fetuses when compared to pregnancies with normal male fetuses."

(b) Poon et al., The Lancet 356, 1819-1820 (November 25, 2000), where detection of fetal DNA was carried out on maternal plasma obtained at 12 & 15 (combined),15 and 21 weeks using a probe specific for chromosome 21 to detect a chromosomal aneuploidy (Down's).

As part of the enablement rejection the Action refers specifically to claims 27 and 29-32, stating that the claims encompass "conditions and characteristics which are not enabled". Applicants respectfully traverse this objection; the method of the invention is potentially applicable to any genetic condition present in the fetus. Which particular genetic condition is being tested for is immaterial; providing the fetal nucleic acid differs qualitatively or quantitatively from that of the maternal genome, then the condition may be detected. Of course, any characteristic that is not truly of genetic origin, is excluded. What this invention achieves is to provide that a genetic change previously undetectable, because of the low concentration of nucleic acid in whole blood, will normally be detectable by starting from plasma or serum. Conditions that would have been undetectable regardless of the quality or quantity of the fetal DNA in the maternal blood will remain undetectable.

A specific enablement objection is raised on page 7 of the Action, at line 12 onwards, relating to claim 31. The objection states that the "absence of a sequence is not supported"

and also that it "is unpredictable without amplification or enrichment". Applicants respectfully contest this objection as the application specifically shows that the absence of a particular sequence can be used reliably to determine the sex of the fetus. Moreover, amplification is not necessarily required as explained in detail above.

To summarize, the patent application clearly teaches Applicants' discovery that fetal nucleic acid can be detected maternal in serum or plasma from the first trimester and how to detect it. It also teaches examples of how this nucleic acid may be used to identify particular genes and enables the skilled man to broadly apply the method of the invention to the field of non-invasive prenatal genetic analysis.

Claims 1 and 5-32 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for allegedly failing to particularly point out and distinctly claim the invented subject matter.

It is believed that all these rejections have been answered by the above argument and/or claim amendment. Referring to the lettered paragraphs in the rejection:

A) As pointed out and demonstrated above, amplification is not a necessary step.

B, C and D) Dealt with by amendment, as noted above.

E) Moot, following cancellation of the claim.

F) The amendment to claim 31 answers the rejection made against claims 31 and 32; cancellation of the other claims renders the remainder of this rejection moot.

Applicant: Lo et al.
Application No.: 09/872,063

With respect to the obvious type double patenting rejection, Applicants presently intend to submit a terminal disclaimer when the other issues of patentability are resolved.

With respect to Application 09/876,005, filed June 6, 2001, it is not commonly owned and Applicants' parent case which issued as U.S. Patent No. 6,258,540 is believed to be prior art in view of that patent's November 29, 1999 Section 102(e) date and September 11, 1998 PCT publication date. In particular, the patent specifically discloses the possibility of using fetal RNA at column 2, lines 6-18 and column 2, lines 26-41.

Reconsideration and allowance of the claims is respectfully requested.

Respectfully submitted,

Lo et al.

By _____
C. Frederick Koenig III
Registration No. 29,662
(215) 568-6400

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Suite 400, One Penn Center
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Philadelphia, PA 19103

CFK/fap
Attachment

Application No.: 09/872,063
Examiner: Goldberg, Jeanine Anne

37 CFR §1.121(b)(1)(iii) and (c)(1)(ii)
CLAIM AMENDMENTS- MARKED UP VERSION

Please amend claims 1, 6, 14, 16, 18, 19 and 31 to read as follows:

1. (Amended) A detection method performed on a maternal serum or plasma sample from a pregnant female, which method comprises detecting the presence of a fetal nucleic acid [of fetal origin] in the sample by detecting nucleic acid which differs qualitatively or quantitatively from that of the maternal genome.

6. (Amended) The method according to claim 1, wherein the presence of a fetal nucleic acid sequence from the Y chromosome is detected.

14. (Amended) The method according to claim [9] 13, for Rhesus D genotyping a fetus in a Rhesus D negative mother.

16. (Amended) The method according to claim [6] 1, which comprises determining the concentration of [the] a fetal nucleic acid sequence in the maternal serum or plasma.

18. (Amended) The method according to claim [16] 1, for the detection of a maternal or fetal disease condition in which the [level] concentration of fetal DNA in the maternal serum or plasma is higher or lower than [normal] the concentration present in normal pregnancy.

19. (Amended) The method according to claim [16] 1 for the detection of a fetal disease condition wherein the pattern of variation of fetal DNA concentration in the maternal serum or plasma at particular stages of gestation is different from [normal] that of normal pregnancy.

31. (Amended) A method of non-invasive prenatal diagnosis for determining [maternal or] a fetal genetic condition[s] comprising:

obtaining plasma or serum from a sample of a pregnant female's blood, detecting fetal nucleic acid within the serum or plasma and determining the presence or absence of one or more selected nucleic acid sequences in the detected fetal nucleic acid.

Please cancel claims 24-30, without prejudice.

Please add the following new claims 33-36 as follows:

--33. A detection method performed on a maternal serum or plasma sample from a pregnant female, which method comprises detecting the presence of a fetal nucleic acid in the sample by detecting nucleic acid which differs in sequence or amount from that of the maternal genome.

34. The method according to claim 16, wherein the fetal nucleic acid sequence is a chromosome 21 sequence.

35. The method according to claim 16, wherein an increase in the quantity of fetal DNA above a population mean indicates an increased risk of fetal aneuploidy.

36. A detection method performed on a maternal serum or plasma sample from a pregnant female, which method comprises (a) amplifying a fetal nucleic acid sequence or isolating fetal cells, from maternal plasma or serum and (b) detecting the presence of a nucleic acid of fetal origin in the amplified sequence or isolated cells. --

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PTO/SB/22 (10-00)
Approved for use through 10/31/2002. OMB 0651-0031
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless if displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): JAK-PT001.1

In re Application of: Lo et al.

Application Number: 09/872,063 | Filed: June 1, 2001

For: NON-INVASIVE PRENATAL DIAGNOSIS

Group Art Unit: 1655 | Examiner: Goldberg, Jeanine Anne

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and appropriate non-small-entity fee are as follows (check time period desired):

- ☐ One month (37 CFR 1.17(a)(1)) $_____
- ☐ Two months (37 CFR 1.17(a)(2)) $_____
- ☒ Three months (37 CFR 1.17(a)(3)) $920.00
- ☐ Four months (37 CFR 1.17(a)(4)) $_____
- ☐ Five months (37 CFR 1.17(a)(5)) $_____

☒ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee amount shown above is reduced by one-half, and the resulting fee is: $460.00.

☒ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Commissioner has already been authorized to charge fees in this application to a Deposit Account.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 22-0493.
I have enclosed a duplicate copy of this sheet.

I am the ☐ applicant/inventor

☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

☒ attorney or agent of record.

☐ attorney or agent under 37 CFR 1.34(a). Registration number if acting under 37 CFR 1.34(a)_____.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

May 9, 2002
Date

Signature

C. Frederick Koenig III
Typed or printed name

05/16/2002 BNGUYEN1 00000138 09872063
01 FC:217 460.00 OP

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

☐ Total of _____ forms are submitted.

Burden Hour Statement: This form is estimated to take 0.1 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

1655

Please type a plus sign (+) inside this box → [+]

PTO/SB/21 (08-00)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/872,063
Filing Date	June 1, 2001
First Named Inventor	Lo et al.
Group Art Unit	1655
Examiner Name	Goldberg, Jeanine Anne
Total Number of Pages in This Submission: 35	Attorney Docket Number: JAK-PT001.1

ENCLOSURES *(check all that apply)*

- [x] Fee Transmittal Form
  - [x] Fee Attached
- [x] Amendment / Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [x] Extension of Time Request
- [ ] Express Abandonment Request
- [x] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
  - [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Assignment Papers *(for an Application)*
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance Communication to Group
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to Group *(Appeal Notice, Brief, Reply Brief)*
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) *(please identify below)*:

Marked-up Claim Amendments (2 pgs.); PTO-1449 (1 pg) w/Patent References [16] and Declaration Under Rule 132 (9 pgs.).

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	C. Frederick Koenig III — Reg. No. 29,662 Volpe and Koenig, P.C.
Signature	
Date	May 9, 2002

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: May 9, 2002

Typed or printed name	C. Frederick Koenig III		
Signature		Date	May 9, 2002

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Volpe and Koenig Revision of PTO/SB/17 (10-01)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT ($) 640.00

Complete if Known	
Application Number	09/872,063
Filing Date	June 1, 2001
First Named Inventor	Lo et al.
Examiner Name	Goldberg, Jeanine Anne
Group Art Unit	1655
Attorney Docket No.	JAK-PT001.1

METHOD OF PAYMENT

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number: 22-0493

Deposit Account Name: VOLPE AND KOENIG, P.C.

☒ Charge any Deficiencies or Credit any Overpayment in the Total Fees Associated With This Communication

☒ Applicant claims small entity status. See 37 CFR 1.27

2. ☒ **Payment Enclosed:**

☒ Check ☐ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	740	201	370	Utility filing fee	
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	

SUBTOTAL (1) ($) 0

2. EXTRA CLAIM FEES

		Extra Claims		Fee from below	Fee Paid
Total Claims	29	- 31** = 0	X	9.00	= 0
Independent Claims	4	- 4 ** = 0	X	42.00	= 0
Multiple Dependent					=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	84	202	42	Independent claims in excess of 3
104	280	204	140	Multiple dependent claim, if not paid
109	84	209	42	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for *ex parte* reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	920	217	460	Extension for reply within third month	460.00
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,280	241	640	Petition to revive - unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	460	243	230	Design issue fee	
144	620	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	180.00
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.129(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid **SUBTOTAL (3)** ($) 640.00

SUBMITTED BY				Complete *(if applicable)*	
Name (Print/Type)	C. Frederick Koenig III	*Registration No. (Attorney/Agent)*	29,662	*Telephone*	215-568-6400
Signature				*Date*	May 9, 2002

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.